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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,214	09/17/2003	Vincent P. Marzen	02CR305/KE	3359

7590 12/19/2007

Attention: Kyle Eppele
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EXAMINER	
NGUYEN, KEVIN M	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
12/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/664,214	MARZEN ET AL.	
	Examiner	Art Unit	
	Nguyen M. Kevin	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. In view of applicant's arguments, see page 2, filed on 10/18/2007, with respect to 112, first paragraph, the rejection stands withdrawn.

2. In view prior art rejection, applicant's arguments, see pages 3-5, filed on 10/18/2007, with respect to claims 1-20 concerning the Miwa reference found on pages 3-5, these are not found to be persuasive.

3. Applicant argues that Miwa does not teach claimed limitation of claim 1 recited "a periphery of the viewing area of the liquid crystal panel." These are not found to be persuasive. Col. 4, lines 50-53 of Miwa discloses a liquid crystal display 10 being integrated in the input panel 1. Figure 1 of Miwa further discloses four sensors (S1 to S4) is positioned at the boundary of the liquid crystal display panel (1, 10). The liquid crystal display panel (10) is displayed the information being touching which implies said viewing area of the liquid crystal panel as claimed. Column 9, line 65 to column 10, line 2 of Miwa further discloses under this arrangement of the sensors S1 to S4, in which they are arranged on the boundaries with an image area of the glass panel (1) which is integrated in the liquid crystal panel (10).

4. Applicant agues that Miwa does not teach the sensors do not originate from the liquid crystal panel. These are not found to be persuasive. Col. 3, lines 60-63 of Miwa discloses "an original is placed on the glass panel (1) whereby a designated point 5 of the original is input as a position signal."

5. Applicant argues that Miwa does not teach claimed "sensors detect vibrations from the interior of the liquid crystal panel". These are not found to be persuasive. Col. 5, lines 7-10 of

Miwa clearly defines sensors S1 to S4 detect vibrations from the interior of the liquid crystal panel. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., sensors detect **vibrations** from the interior of the liquid crystal panel) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

6. Applicant argues that Miwa does not teach claimed limitation of claim 11 recited "tapping a first location on said viewing area and thereby generating a shockwave." These are not found to be persuasive. Figure 8, column 9, lines 26-33 of Miwa teaches the method of inputting on the touch panel (1) being integrated in liquid crystal panel (10) (corresponding to said viewing area as claimed) comprising the step of hitting input (step F2), with the coordinates of the point P (M_x, M_y) designated by touching is displayed on the display (55). For example, if x =1, y=1, the first point P (1, 1) of the first location being touching which implies tapping a first location on said viewing area as claimed. As repeating the rejection above, Miwa teaches touching a designated point P (X, Y) on the glass panel (1) with pen, the shock wave are propagated on the surface of the glass panel (1) or through it, and reach the respective sensors S1 to S4, col. 4, lines 61-65.

7. Applicant argues that Miwa does not teach claimed limitation of claim 17. In response, the limitation of **claim 17** is similar to those of **claim 11**, though in apparatus form, therefore the rejection of **claim 17** will be treated using the same rationale as **claim 11.**

8. For these reasons, the rejection of claims 1-20 based on Miwa is maintained.

Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-4, 11-13 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Miwa et al (US 5,717,432 hereinafter Miwa).

11. As to claim 1, Miwa teaches a touch screen display apparatus, comprising:

a liquid crystal panel (10, fig. 2) having a viewing area with a periphery (boundary, fig. 1, col. 9, lines 65-67);

a plurality of shockwave detectors (sensors S_1-S_4, fig. 1) disposed about said periphery (the boundary);

said plurality of shockwave detectors (the sensors S_1-S_4) configured to use a time of arrival (fig. 4) of a tap-generated (hit input by touching, fig. 8) shockwave (a shockwave, col. 4, lines 61-67) to determine a point of original (origin 0,0 at t_0, fig. 4) the tap-generated of the shockwave in the liquid crystal panel (10) which results from a touch (a touched point) occurring at said point of origin (the origin 0,0 at t_0, fig. 4). The operations of the above-identified elements are discussed in col. 3 through col. 6.

As to claim 2, Miwa teaches a display of claim 1 wherein said periphery is free from a plurality of pairs of opposing transmitters and receivers are disposed about said periphery where said plurality of pairs of opposing transmitters and receivers are configured to detect a presence of an object disposed on the viewing area and between said transmitters and receivers *(fig. 1 of*

Miwa does NOT disclose the boundary of the LCD panel 10 which has transmitter and receiver pairs disposed thereon).

As to claim 3, Miwa teaches a display of claim 2 wherein said viewing area is free from an electrically conductive transparent layer and free from a connection to an electronic detections means which is configured to detect touching *(fig. 1 of Miwa does NOT disclose and NOT electrically connect the boundary of the LCD panel 10 which has transmitter and receiver pairs disposed on a glass panel 1 of said LCD panel).*

As to claim 4, Miwa a display of claim 1 further teaches comprising a first array of shockwave detectors (S_1 and S_3), disposed along a horizontal edge (X-axis), which define a plurality of columns across said viewing area; and a second array of shockwave detectors (S_2 and S_4), disposed along a vertical edge (Y-axis), which defines a plurality of rows across said viewing area (fig. 2, col. 6, lines 10-24).

12. As to claim 11, Miwa teaches a method of detecting a touch on a viewing panel of a liquid crystal display, comprising the steps of:

providing a display panel comprising a liquid crystal material, said display having a viewing area (element 10, fig. 2);

tapping a first location on said viewing area and thereby generating a shockwave as a result of such tapping (hit input by touching, fig. 8, col. 5, lines 34-35).

providing a plurality of shockwave detectors (S_1-S_4) which are not located at a single location (col. 9, lines 65-67);

detecting an arrival of said shockwave at each of said plurality of shockwave detectors (col. 4, line 63), determining a time of arrival (fig. 4) of said shockwave at each of said plurality

of shockwave detectors (S_1-S_4), locating said first location (P(x, y), when x=1 and y=1) in response to said step of determining a time of arrival (fig. 4) of said shockwave. The operations of the above-identified elements are discussed in col. 3 through col. 6.

As to claim 12, Miwa teaches a method of claim 11 wherein said relative time of arrival is based upon a plurality of times of arrival of said shockwave at a plurality of shockwave detectors, fig. 4, col. 4, line 61 to col. 5, line 3.

As to claim 13, Miwa teaches a method of claim 12 wherein said step of detecting an arrival of said shockwave comprises the steps of detecting a change in a predetermined electrical characteristic of said liquid crystal material in response to a presence of said shockwave, fig. 5, col. 5, line to col. 6, line 67.

As to claim 15, Miwa teaches a method of claim 11 wherein said step of locating said first location comprises using a triangulation computation (arithmetic calculation of a point P (x,y) based on detection of three sensors S1 (L, 0), S2(0, L), and S3 (-L, 0), fig. 2, col. 6).

As to claim 16, Miwa teaches a method of claim 11 wherein said step of locating said first location comprises a determination of a row and a column (col. 6, lines 10-24).

13. As to claim 17, figure 2 of Miwa teaches an apparatus for detecting a sense of touch upon a viewing area of a liquid crystal display (10), comprising:

a liquid crystal panel having a viewing area (10), with a periphery (col. 9, lines 65-67);

a plurality of shockwave detectors disposed about said periphery of said viewing surface (sensors S_1-S_4, fig. 2, col. 4, lines 61-67);

means for performing a triangulation computation to determine a location of a point of tactile stimulation (touch stimulation) on said viewing surface, said means for performing being

responsive to signals representative of a detection of a tap-generated shockwave, generated at said point of tactile stimulation (touch stimulation), by said plurality of detectors (arithmetic calculation of a point P (x,y) based on detection of three sensors S_1 (L, 0), S_2(0, L), and S_3 (-L, 0), fig. 2). The operations of the above-identified elements are discussed in col. 3 through col. 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miwa.

Miwa teaches a display of claim 4 further comprising a third array of shockwave detectors (S4, S3) opposite said first array of shockwave detectors (S1, S2) and a fourth array of shockwave detectors (S4, S1) opposite the second array of shockwave detectors (S3, S2, fig. 1). It would have been obvious to provide a third array of shockwave and the fourth array of shockwave as taught by Miwa because this would improve the quality of the point being touched to achieve precision (col. 10, lines 1-2).

15. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miwa in view of Umemoto et al (US 6,891,530) hereinafter Umemoto.

As to claim 6, Miwa teaches all of the claimed limitation of claim 1, except wherein said liquid crystal panel is a multi-domain vertically aligned liquid crystal cell.

As modified by Umemoto reference, Umemoto teaches the deficiencies of Miwa a related touch panel comprising a reflected liquid crystal panel 70 and a liquid crystal cell/molecules 54 is a multi-domain vertically aligned-cell in Fig. 1 and 4, col. 15, lines 30-47 and col. 15, lines 48-55.

As to claim 7, Miwa teaches a display of claim 6 further comprising means for determining a location of a tactile interaction (touch stimulation) on said viewing area by analyzing a time of arrival difference (fig. 4) of a shockwave, due to said tactile interaction (touch stimulation), on at least two non-co-located points (col. 4,lines 61-67).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have combined Umemoto into Miwa to create the claimed invention. It would have been obvious to modify Miwa to become vertically aligned cell of the liquid crystal molecules as taught by Umemoto in order to achieve the benefit of providing a touch-input type reflective liquid-crystal display device bright, easy to view and excellent in low electric power consumptions (see Umemoto, col. 15, lines 5-7).

16. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miwa in view of Umemoto as applied to claim 1 above, and further in view of Duwaer (US 5,402151).

As to claim 8, the combination of Miwa and Umemoto teaches all of the claimed limitation of claim 1, except for an active thin film transistor layer in said liquid crystal panel, wherein said first array of shockwave detectors is integrated into said thin film transistor layer. As modified by Duwaer reference, figure 4 of Duwaer teaches the deficiencies of Miwa and Umemoto a related touch screen LCD 14 which includes a thin film transistor layer underneath comprising four elastic devices 104, 106, 108 and 110, each elastic device 104-110 comprises a

train gauge (col. 8, lines 52-56); digitizing tablet 12 and touch screen 10 include surface acoustic waves (SAW) both have been integrated on LCD 14 (col. 8, lines 31-34).

As to claim 9, Duwaer teaches a display of claim 8 wherein said first array of shockwave detectors is configured to detect a change of capacitance of said liquid crystal material in response to presence of a shockwave *[electronic circuitry is provided for detecting a capacitive coupling from sheet 10 and 12 towards earth via finger 130 and for thereupon deriving the finger's 130 position, Fig. 5, col. 9, lines 13-16].*

As to claim 10, Duwaer teaches a display of claim 8 wherein said first array of shockwave detectors is configured to detect a change of resistance of said liquid crystal material in response to presence of a shockwave *[the homogeneous electrically resistive sheet 10 and 12 plays a part in both digitizing tabled 12 and touch screen 10, col. 9, lines 9-11].*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have combined Duwaer, Miwa and Umemoto to create the claimed invention. It would have been obvious to modify Miwa and Umemoto to make integral the sensors (6) and the thin film transistor layer (14) as taught by Duwaer in order to achieve the benefit of providing a minimum parallax which can be attained owing to the highly compact structure, while fabricating the touch panel at low cost and light weight (Duwaer, col. 9, lines 61-64).

17. Claims 14 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miwa as applied to claims 11 and 17 above, in view of Wilson et al (US 6,504,530) hereinafter Wilson.

As to claim 14, Miwa teaches all of the claimed limitation of claim 11, except wherein said step of detecting an arrival of said shockwave comprises the steps of detecting a change in a predetermined optical characteristic of said liquid crystal material in response to a presence of said shockwave. As modified by Wilson reference, Wilson teaches the deficiencies of Miwa a touchscreen system which includes acoustic wave sensors comprising optical sensors 1307 and 1309 disposed on a liquid crystal layer 1301 and a pair of PVDF thin film piezoelectric strain gauges, the optical sensor 1307 and 1309 must continue to scan the IR beam across the active touch region in order to respond to a touch (Fig. 13, col. 10, lines 18-24, col. 9, line 66 through col. 10, lines 6, and col. 10, lines 57-59).

As to claim 18, Miwa teaches all of the claimed limitation of claim 17, except wherein said plurality of shockwave detectors comprises a plurality of optical sensors disposed on a layer having thin film transistors thereon, where said plurality of optical sensors measures an optical characteristic of a segment of said liquid crystal material.

However, Wilson teaches a touchscreen system which includes acoustic wave sensors comprising optical sensors 1307 and 1309 disposed on a liquid crystal layer 1301 and a pair of PVDF thin film piezoelectric strain gauges, the optical sensor 1307 and 1309 must continue to scan the IR beam across the active touch region in order to respond to a touch (Fig. 13, col. 10, lines 18-24, col. 9, line 66 through col. 10, lines 6, and col. 10, lines 57-59).

As to claim 19, Wilson teaches an apparatus of claim 17 wherein said optical characteristic is a brightness of light reflection *[reflective grids 705, fig. 7] of a surface on an opposite side of said liquid crystal material from said layer [col. 7, lines 48-58].*

As to claim 20, Miwa teaches an apparatus of claim 17 wherein said means for performing a triangulation computation determines a relative time of arrival of a shockwave at said plurality of shockwave detectors (arithmetic calculation of a point P (x,y) based on detection of three sensors S1 (L, 0), S2(0, L), and S3 (-L, 0), fig. 2, col. 6).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have combined Wilson and Miwa to create the claimed invention. It would have been obvious to modify Miwa to make special optical sensors for detecting the elastic wave as taught by Wilson in order to achieve the benefit of improving the high accuracy of the point being touched (Wilson, col. 9, lines 17-20), while fabricating the touch panel with minimizing the power consumption (Wilson, col. 10, lines 50-54).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

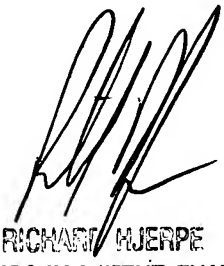
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen M. Kevin whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin M. Nguyen/
Kevin M. Nguyen
Examiner
Art Unit 2629



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